

**SAU 50
Grade 3
Mathematics
Geometry**

Geometry: understand and measure [area](#) and [perimeter](#).

SAU 50 District Competency:

Students will independently use their learning to use attributes of two-dimensional shapes and complex figures to explain, create, and solve problems.

Essential Questions

- Why do mathematical formulas work?
- Why do we represent, compare, contrast and classify objects?
- How can shapes be represented, compared, and measured?
- Why do we compare, contrast and classify objects?
- Why do mathematical formulas work?

Acquisition

Students will demonstrate the following to meet the standards.

- I can name quadrilateral shapes (rhombus, trapezoid rectangle, square, etc. as examples of quadrilaterals).
- I can draw examples of quadrilaterals that do not belong to any subcategory (not rhombi, rectangles, or squares, etc., such as trapezoids, and/or various sizes and shapes of convex and concave quadrilaterals).
- I can partition shapes into parts with equal areas.
- I can express the area of each part as a unit fraction of the whole.
- I can measure or find the perimeter of a shape.
- I can recognize attributes of plane figures (area and perimeter).
- I can find the area of a shape by counting unit squares.
- I can use both multiplication and addition to find area.
- I can use square tiles to build arrays representing multiplication facts.
- I can divide irregular figures into rectangles to find the area of the whole figure.
- I can find the perimeters of polygons with known and unknown side lengths (n).

Standards

NH College and Career Ready Standards

Key to Standard Notation:

3.G.1: 3 (*grade level*) **G** (*domain: Geometry*) **MD** (*domain: Measurement and Data*) **1** (*number of the standard*)

Geometry

Reason with shapes and their attributes.

3.G.1: Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

3.G.2: Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as $\frac{1}{4}$ of the area of the shape.

Measurement and Data

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

3.MD.5: Recognize area as an attribute of plane figures and understand concepts of area measurement.

3.MD.5a: A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.

3.MD.5b: A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.

3.MD.6: Measure areas by counting unit squares. (square cm, square m, square in, square ft, and improvised units)

3.MD.7: Relate area to the operations of multiplication and addition.

3.MD.7a: Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.

3.MD.7b: Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

3.MD.7c: Use tiling to show a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.

3.MD.7d: Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

3.MD.8: Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

[New Hampshire College and Career Ready Standards](#)

References:

National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010). *Common Core Standards for Mathematics* (United States, National Governors Association Center for Best Practices, Council of Chief State School Officers). Retrieved August 10, 2016, from http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf

Math is fun/definitions. (n.d.). Retrieved April 17, 2017, from <http://www.mathisfun.com/definitions>